REMARKS

Claims 1 to 18 are all the claims pending in the application.

Applicants have amended claim 1 to direct it to a resin composition as set forth in claim 4 and to incorporate subject matter from claims 2 and 14. Claims 2, 4 and 14 have been cancelled. In addition, applicants have amended claim 1 to recite an annealing temperature of from 55°C higher than the glass transition point of the resin to a temperature of 75°C higher than the glass transition point of the resin. Support for this amendment can be found in Example 1, where the resin had a glass transition point Tg of 145°C (Table 1) and annealing was at a temperature of 200°C or 220°C (page 18, lines 14-15).

Claims 1, 2 and 4-18 have been rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 5,458,967 to Kanno et al.

In addition, claims 1, 2 and 4-18 have been rejected under 35 U.S.C. § 103(a) as obvious over Kanno et al.

Applicants submit that Kanno et al do not disclose or render obvious the subject matter of the above amended claims and, accordingly, request withdrawal of this rejection.

The present invention as set forth in claim 1 as amended above is directed to a resin composition comprising a resin crystallization promoter comprising vapor-grown carbon fibers, each fiber filament of the carbon fibers having a diameter of 0.001 μm to 5 μm and an aspect ratio of 5 to 15,000, the fibers having undergone a graphitization at 1,500°C or higher. The resin composition is obtained by kneading the crystallization promoter with a resin, and subsequently subjecting the resultant mixture to annealing at a temperature under certain conditions. In

particular, the annealing is at a temperature of from 55°C higher than the glass transition point of the resin to a temperature 75°C higher than the glass transition point of the resin.

According to the present invention, the fibers serve as a resin crystallization promoter by annealing, and as a result crystallization of the resin and/or melting point elevation of the resin can be observed. Promotion of crystallization of a resin enables to improve strength, tribological characteristics and reinforcement effects by vapor-grown carbon fibers of the resin composition.

Such effects appear prominently in compositions that contain vapor-grown carbon fibers subjected to a graphitization at 1500°C or higher, e.g., in Example 1 in comparison to Comparative Examples 1 and 3.

Comparative Example 3 shows the results of DSC measurement and X-ray diffraction analysis of a plate sample made of polycarbonate (PC) resin without comprising the above-mentioned vapor-grown carbon fibers, which was subjected to annealing at different temperatures. As stated in Comparative Example 3, a peak attributed to crystallization of the polycarbonate was not observed in any case of the annealing temperature.

Meanwhile, Example 1 and Comparative Example 1 show the results of DSC measurement and X-ray diffraction analysis of plate samples made of polycarbonate comprising the above-mentioned vapor-grown carbon fibers. As stated in Example 1, with respect to test samples subjected to annealing at a specific temperature 200°C (Tg + 55°C) or 220°C (Tg + 75°C), an endothermic peak attributed to melting point was observed at about 200 to 250°C. Further, as stated in Comparative Example 1, with respect to test samples subjected to annealing at specific temperatures of 160°C (Tg + 15°C) and 240°C (Tg + 95°C), which are

outside the annealing temperature range of claim 1, a new peak attributed to crystallization of polycarbonate was not observed.

Kanno et al relate to a composite sheet for electromagnetic wave shield comprising a conductive resin layer made of a material wherein vapor-grown carbon fibers are dispersed.

Kanno et al do not disclose or suggest a composition that has been obtained by subjecting the composition to an annealing temperature at an annealing temperature range that is 55°C higher to 75°C higher than the glass transition point of the resin.

Thus, Kanno et al do not disclose or suggest a resin composition comprised of a resin crystallization promoter comprising vapor-grown carbon fibers, wherein the resin composition is obtained by kneading the crystallization promoter with a resin and subsequently subjecting the resultant composition to the specific annealing temperature range set forth in the present claims. As can be seen from the above discussion of the Examples and Comparative Examples of the present specification, the use of the specific temperature range set forth in the present claims for the annealing results in compositions that have properties that are not obtained by annealing at the temperatures of Comparative Example 1 outside the claimed range. Kanno et al do not disclose or suggest that the vapor-grown carbon fibers serve as a resin crystallization promoter by heating a resin composition comprising vapor-grown carbon fibers at a specific range of temperatures, and do not disclose or suggest that the heating (annealing) can improve the strength, tribological characteristics and reinforcement effects by vapor-grown carbon fibers of the resin composition.

Accordingly, applicants submit that Kanno et al do not anticipate or suggest the present claims.

In view of the above, applicants submit that Kanno et al do not disclose or render obvious the subject matter of the above amended claims and, accordingly, request withdrawal of this rejection.

Claims 1-6 and 9-18 have been rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent Application Publication No. 2003/0049443 to Nishimura et al.

Applicants submit that Nishimura et al do not disclose or render obvious the subject matter of the above amended claims and, accordingly, request withdrawal of this rejection.

Nishimura et al relate to a production method of fine carbon fibers using vapor-grown fine carbon fibers as a raw material and to a battery electrode containing the fine carbon fibers.

Nishimura et al do not disclose or suggest a composition that has been obtained by subjecting the composition to an annealing temperature in an annealing temperature range that is 55°C higher to 75°C higher than the glass transition point of the resin.

Thus, Nishimura et al do not disclose or suggest a resin composition comprised of a resin crystallization promoter comprising vapor-grown carbon fibers, wherein the resin composition is obtained by kneading the crystallization promoter with a resin and subsequently the subjecting resultant composition to the specific annealing temperature range set forth in the present claims. As can be seen from the above discussion of the Examples and Comparative Examples of the present specification, the use of the specific temperature range set forth in the present claims for

the annealing results in compositions that have properties that are not obtained by annealing at the temperatures of Comparative Example 1 outside the claimed range. Nishimura et al do not disclose or suggest that the vapor-grown carbon fibers serve as a resin crystallization promoter by heating a resin composition comprising vapor-grown carbon fibers at a specific range of temperatures, and do not disclose or suggest that the heating (annealing) can improve the strength, tribological characteristics and reinforcement effects by vapor-grown carbon fibers of the resin composition.

Accordingly, applicants submit that Nishimura et al do not anticipate or suggest the present claims.

In view of the above, applicants submit that Nishimura et al do not disclose or render obvious the subject matter of the above amended claims and, accordingly, request withdrawal of this rejection.

Claims 1-18 have been rejected provisionally on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 1-15 of copending application no. 10/553,868.

Copending application no. 10/553,868 relates to a vapor-grown carbon fiber containing organic dispersion containing an organic solvent, resin dissolved in the solvent and vapor-grown carbon fiber.

The claims of the copending application do not disclose or suggest an annealing treatment, and thus do not disclose or suggest a composition that has been obtained by subjecting

the composition to an annealing temperature in an annealing temperature range that is 55°C higher to 75°C higher than the glass transition point of the resin.

Thus, the claims of the copending application do not disclose or suggest a resin composition comprised of a resin crystallization promoter comprising vapor-grown carbon fibers, wherein the resin composition is obtained by kneading the crystallization promoter with a resin and subsequently subjecting the resultant composition to the specific annealing temperature range set forth in the present claims. As can be seen from the above discussion of the Examples and Comparative Examples of the present specification, the use of the specific temperature range set forth in the present claims for the annealing results in compositions that have properties that are not obtained by annealing at the temperatures of Comparative Example 1 outside the claimed range. The claims of the copending application do not disclose or suggest that the vapor-grown carbon fibers serve as a resin crystallization promoter by heating a resin composition comprising vapor-grown carbon fibers at a specific range of temperatures, and do not disclose or suggest that the heating (annealing) can improve the strength, tribological characteristics and reinforcement effects by vapor-grown carbon fibers of the resin composition.

Accordingly, applicants submit that the claims of the copending application do not anticipate or suggest the present claims.

Consequently, it would not have been obvious to one of ordinary skill in the art to arrive at the present invention from the claims of the copending application.

In view of the above, applicants request withdrawal of this rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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